

ABSTRACT

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**"NOVEL CIRCUIT DESIGNS AND CONTROL
TECHNIQUES FOR HIGH FREQUENCY ELECTRONIC
BALLASTS FOR HIGH INTENSITY DISCHARGE LAMPS"**

The present invention provides an electronic ballast for a high intensity discharge lamp such as a metal halide lamp. The ballast includes an inverter and a resonant circuit with an ignition capacitor between the resonant circuit and the lamp. The ignition capacitor serves to provide the necessary start-up energy and also serves to provide a low impedance discharge path. A single ignition capacitor may be sufficient, but if a long cable is used to connect the lamp to the ballast, then two ignition capacitors in parallel at opposite ends of the cable may be used. The ballast further provides means for monitoring and controlling lamp power by monitoring a nominally constant dc link voltage, and means for detecting short-circuit and open circuit conditions. A retrial mechanism is provided in the event of the lamp failing to ignite that includes a temporary disabling of the inverter in order to keep the rms lamp voltage low.

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